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Anti-inflammatory effects of essential oil of *Zanthoxylum myriacanthum* var. *pubescens* Huang (Ma Qian), a Dai folk medicine

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Zanthoxylum myriacanthum var. *pubescens* Huang (Ma Qian) is a common plant grown in mountainous areas in Xishuangbanna, Yunnan province. The fruits are used as a flavoring agent in food processes such as barbecue and stewing. In Dai folk medicine, it is used for the treatment of insect bites and intestinal problems. As some essential oils are reported to have anti-inflammatory effects, we want to test whether Ma Qian essential oil has similar effects. Ma Qian essential oil was made from dried fruits. Chemical analysis showed the major ingredient of Ma Qian essential oil is D-limonene. To study the anti-inflammatory effects of the essential oil, we started with macrophage 264.7 cell line. Ma Qian essential oil inhibited NO production from LPS stimulated macrophage in a dose dependent manner without affecting cell viability. Similar inhibitory effects were also observed for TNF-alpha and IL-1beta. *In vivo* anti-inflammatory effect of Ma Qian essential oil was further tested in DSS-induced colitis model. Groups of Kunming mice were given two doses of Ma Qian essential oil and the control group was given the vehicle. Mice were given essential oil for 7 days before DSS and continued for 7 days. Notably, Ma Qian essential oil completely prevented mortality induced by DSS. Moreover, mice on Ma Qian essential oil showed less weight loss compared with control in a dose dependent manner. These data suggest that Ma Qian essential oil has potent anti-inflammatory effect and might be used as a safe anti-inflammatory agent in many settings.

Biography

Ping Zhang completed her PhD at Texas A&M University, College Station, USA and did Postdoctoral studies from Wake Forest University, Oklahoma University Health Science Center, and Duke University Medical Center. She is currently a Professor at Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences. Her work covers polyunsaturated fatty acids as well as T cell biology in health and disease. Her recent interests extend to immune-modulatory effects of phytochemicals from foods and medicinal plants. She is serving as a reviewer for the British Journal of Nutrition and World Microbiology and Biotechnology.

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